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REMARKS

In view of the following discussion, the Applicants believe that all claims are in allowable form. The Applicants submit that this Response is a proper response to a Final Office Action. All amendments to the claims incorporate limitations previously present in other dependent claims. As such, no new search is required. Consequently, the amendments should be entered and the claims, as amended, deemed allowable.

CLAIM REJECTIONS

I. 35 U.S.C. §112

A. Claims 1-73

Claims 1-73 stand rejected under 35 U.S.C. §112. In particular, the Examiner indicates that the compound TiSiN appears improbable and requests a statement indicating whether the term "TiSiN" is intended as a chemical formula. In response, the Applicants submit that the term "TiSiN" is not intended as a chemical formula, but rather as a shorthand notation for a material layer comprising titanium, silicide, and nitride (analogous to the Ti-Si-N notation in the cited references). Therefore, it is respectfully requested that this rejection be withdrawn.

B. Claim 15

Claim 15 stands rejected for being unclear as to when step (d) occurs. In response, the Applicants have amended claim 15 to more clearly recite aspects of the invention. In particular, claim 15 has been amended to clarify that step (d) occurs after step (c). Therefore, it is respectfully requested that this rejection be withdrawn.

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II. 35 U. S. C. §103 Claims 1-9, 26-34, 40-45 and 62-67

A. Claims 1-9

Claims 1-9 stand rejected as being unpatentable over United States Patent Serial No. 6,017,818, issued January 25, 2000 to Lu (hereinafter *Lu*), in view of "Chemical Vapor Deposition," by Sivaram (hereinafter *Sivaram*). In response, the Applicants have amended claim 1 to more clearly recite aspects of the invention. Claims 2, 5, and 10 have been cancelled and their respective limitations incorporated into claim 1. Claims 3, 4, and 11-14 have been amended to correct dependency.

Claim 1, as amended, recites limitations not taught or suggested by any combination of the cited references. *Lu* describes a method for forming a TiSiN film through thermal decomposition of a metallo-organic titanium precursor and a nitrogen containing precursor to form a TiN layer, which is then annealed in a silicon-containing atmosphere. (*Lu*, col. 3, l. 40 to col. 4, l. 21). *Lu* does not teach or suggest removing reaction by-products generated during film formation from the process chamber by providing a purge gas and evacuating both the purge gas and the reaction byproducts from the chamber prior to exposing such layer to a silicon containing gas to form a titanium silicide nitride (TiSiN) layer, as recited in claim 1.

The Examiner asserts that the input of gases at low pressure during the process implies the use of vacuum and output of gases inherently occurring during the process. The Applicants respectfully disagree with the Examiner's characterization that merely maintaining a low pressure in a chamber is equivalent to removal of reaction by-products by the specific introduction of a purge gas and evacuation of both the purge gas and the reaction by-products from the chamber as recited in claim 1. *Lu* does not teach or suggest introducing a purge gas to the chamber nor removing reaction by-products by evacuation of the purge gas along with the by-products, as recited in claim 1. As such, it would not have been obvious to one skilled in the art to remove reaction by-products by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, as recited in claim 1.

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The Examiner further cites to *Sivaram* to bolster her assertions. *Sivaram* lists a series of "quasi steady-state subprocesses" including desorption of reaction by-products and diffusion of the by-products away from the surface. (*Sivaram*, p. 1.) However, the list cited to by the Examiner is a generalized list of reactions at a molecular level. The diffusion of by-products from an area of high concentration near the surface of the film to an area of lower concentration away from the surface of the film does not in any way imply the use of, or need for, a separate step of removing reaction by-products by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, as recited in claim 1.

Sivaram only generally describes CVD processes and in particular formation of titanium nitride (see, *Sivaram* at page 197-201). *Sivaram* does not describe or suggest removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, as recited in claim 1.

As such, *Sivaram* cannot be used to modify the teachings of *Lu* to yield the claimed invention since neither *Lu* nor *Sivaram* teaches or suggests a method for forming a TiSiN layer including the step of removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, as recited in claim 1. Therefore, the Examiner has failed to create a *prima facie* case of obviousness because the combination of the cited references fails to teach or suggest all of the claimed limitations. Thus, independent claim 1, and all claims depending therefrom, are patentable over *Lu* in view of *Sivaram*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

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B. Claims 26-34

Claims 26-34 stand rejected as being unpatentable over *Lu* in view of *Sivaram*. In response, the Applicants have amended claim 26 to more clearly recite aspects of the invention. Claims 27, 30, and 35 have been cancelled and their respective limitations incorporated into claim 26. Claims 28, 29, and 36-39 have been amended to correct dependency.

Claim 26, as amended, recites limitations not taught or suggested by any combination of the cited references. As discussed in section II.A., above, *Lu* and *Sivaram* do not teach or suggest removing reaction by-products generated during film formation from the process chamber by providing a purge gas and evacuating both the purge gas and the reaction byproducts from the chamber prior to exposing such layer to a silicon containing gas to form a titanium silicide nitride (TiSiN) layer, as recited in claim 26.

As such, *Sivaram* cannot be used to modify the teachings of *Lu* to yield the claimed invention since neither *Lu* nor *Sivaram* teaches or suggests a method for forming a TiSiN layer including the step of removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, as recited in claim 26. Therefore, the Examiner has failed to create a *prima facie* case of obviousness because the combination of the cited references fails to teach or suggest all of the claimed limitations. Thus, independent claim 26, and all claims depending therefrom, are patentable over *Lu* in view of *Sivaram*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

C. Claims 40-45

Claims 40-45 stand rejected as being unpatentable over *Lu* in view of *Sivaram*. In response, the Applicants have amended claim 40 to more clearly recite aspects of the invention. Claim 46 has been cancelled and its limitations

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incorporated into claim 40. Claims 47-50 have been amended to correct dependency.

Claim 40, as amended, recites limitations not taught or suggested by any combination of the cited references. *Lu* and *Sivaram* are discussed in section II.A., above. *Lu* further teaches that the formation of the TiN layer and the subsequent annealing step may be performed in separate process chambers. However, neither *Lu* nor *Sivaram* teaches or suggests treating the titanium nitride (TiN) layer with a hydrogen-containing plasma prior to exposing the titanium nitride (TiN) layer to a silicon-containing gas to convert the titanium nitride (TiN) layer to a titanium silicide nitride (TiSiN) layer, as recited in claim 40.

As such, *Sivaram* cannot be used to modify the teachings of *Lu* to yield the claimed invention since neither *Lu* nor *Sivaram* teaches or suggests a method for forming a TiSiN layer including the step of treating the titanium nitride (TiN) layer with a hydrogen-containing plasma, as recited in claim 40. Therefore, the Examiner has failed to create a *prima facie* case of obviousness because the combination of the cited references fails to teach or suggest all of the claimed limitations. Thus, independent claim 40, and all claims depending therefrom, are patentable over *Lu* in view of *Sivaram*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

D. Claims 62-67

Claims 62-67 stand rejected as being unpatentable over *Lu* in view of *Sivaram*. In response, the Applicants have amended claim 62 to more clearly recite aspects of the invention. Claim 68 has been cancelled and its limitations incorporated into claim 62. Claims 69-73 have been amended to correct dependency.

Claim 62, as amended, recites limitations not taught or suggested by any combination of the cited references. *Lu* and *Sivaram* are discussed in section II.A., above. *Lu* further teaches that the formation of the TiN layer and the subsequent annealing step may be performed in separate process chambers. However, neither *Lu* nor *Sivaram* teaches or suggests treating the titanium nitride

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(TiN) layer with a hydrogen-containing plasma prior to exposing the titanium nitride (TiN) layer to a silicon-containing gas to convert the titanium nitride (TiN) layer to a titanium silicide nitride (TiSiN) layer, as recited in claim 62.

As such, *Sivaram* cannot be used to modify the teachings of *Lu* to yield the claimed invention since neither *Lu* nor *Sivaram* teaches or suggests a method for forming a TiSiN layer including the step of treating the titanium nitride (TiN) layer with a hydrogen-containing plasma, as recited in claim 62. Therefore, the Examiner has failed to create a *prima facie* case of obviousness because the combination of the cited references fails to teach or suggest all of the claimed limitations. Thus, independent claim 62, and all claims depending therefrom, are patentable over *Lu* in view of *Sivaram*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

III. 35 U. S. C. §103 Claims 10-25, 35-39, and 46-61

A. Claims 10-14

Claims 10-14 stand rejected as being unpatentable over *Lu* in view of *Sivaram* and further in view of Great Britain Patent Application Serial No. 2,299,345 published October 2, 1996, by Kim et al. (hereinafter *Kim*), or United States Patent Serial No. 5,576,071, issued November 19, 1996, to Sandhu (hereinafter *Sandhu*), or United States Patent Serial No. 5,567,483, issued October 22, 1996, to Foster et al. (hereinafter *Foster*). In response, the Applicants have amended claim 1 to more clearly recite aspects of the invention.

Claim 1, as amended, recites limitations not taught or suggested by any combination of the cited references. As discussed in section II.A., above, neither *Lu* nor *Sivaram*, alone or in combination, teaches or suggests a method for forming a TiSiN layer including the step of removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, as recited in claim 1.

Kim describes a method of forming a TiN film from organometallic precursors (*Kim*, p. 2, ll. 23-24). After formation, the TiN film is plasma treated

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using a hydrogen/nitrogen atmosphere to dissociate carbon from the TiN film (*Kim*, p. 2, ll. 24-27, to p. 3, ll. 24-28). However, the carbon in the TiN film comes from the use of the organic precursor. (see, *Sandhu*, below). As such, there is no motivation to combine the hydrogen plasma treatment of *Kim* with the TiSiN formation method of *Lu* to yield a method for forming a TiSiN layer from an inorganic precursor, such as $TiCl_4$.

Moreover, *Kim* does not teach or suggest removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, as recited in claim 1. As such, *Kim* cannot be used to modify the teachings of *Lu*, and *Sivaram* to yield the claimed invention.

Sandhu describes a method of forming films from organometallic precursors (*Sandhu*, col. 1, ll. 40-48). After formation, the films are plasma treated using a hydrogen/nitrogen atmosphere to remove carbon from the film (*Sandhu*, col. 5, ll. 25-35). *Sandhu* teaches that the carbon is from the organic precursor. (*Sandhu*, col. 3, ll. 54-55). *Sandhu* further teaches that the reason for plasma treating the TiN film is to remove the incorporated carbon from the organic precursor. (*Sandhu*, col. 2, ll. 1-5). As such, there is no motivation to combine the hydrogen plasma treatment of *Sandhu* with the TiSiN formation method of *Lu* to yield a method for forming a TiSiN layer from an inorganic precursor, such as $TiCl_4$.

Moreover, *Sandhu* does not teach or suggest removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, as recited in claim 1. As such, *Sandhu* cannot be used to modify the teachings of *Lu*, and *Sivaram* to yield the claimed invention.

Foster teaches and suggests a method of forming a TiN film from a $TiCl_4$ precursor and subsequently subjecting the TiN film to a plasma enhanced anneal in a nitrogen containing plasma. (*Foster*, col. 3, ll. 43-52.) The purpose of the

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nitrogen plasma treatment is to enhance nitridation of the TiN film. As such, there is no motivation to combine *Foster's* nitrogen plasma with the TiSiN formation method of *Lu*. In addition, *Lu* teaches away from using TiCl₄ as a precursor to form the TiN layer, thereby teaching away from combining the methods of *Foster* and *Lu*. (*Lu*, col. 1, ll. 38-45.)

Moreover, *Foster* does not teach or suggest removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, as recited in claim 1. As such, *Foster* cannot be used to modify the teachings of *Lu*, and *Sivaram* to yield the claimed invention.

Finally, *Lu* teaches away from combining any of the above references with the *Lu* invention in a manner which would yield the claimed invention. *Lu* teaches that "standard processing" can be used for all of the process steps "up to the formation of the interlevel dielectric and the formation of the holes for the vias/contacts," and also "after the formation of the TiN based layer and the inventive annealing process steps." (*Lu*, col. 3, ll. 34-40.) Therefore, even where one to add additional steps to *Lu*, *Lu* teaches away from interposing those steps between the TiN formation step and the annealing step in a Si atmosphere. Thus, neither *Kim*, *Sandhu*, nor *Foster* may be combined with the teachings of *Lu* and *Sivaram* in a manner that teaches or suggests treating the titanium nitride (TiN) layer with a hydrogen-containing plasma prior to exposing the titanium nitride (TiN) layer to a silicon-containing gas to convert the titanium nitride (TiN) layer to a titanium silicide nitride (TiSiN) layer, as recited in claim 1.

As such, neither *Kim*, *Sandhu*, nor *Foster* may be combined with the teachings of *Lu* and *Sivaram* in a manner that teaches or suggests a method for forming a TiSiN layer including the step of removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, and treating the titanium nitride (TiN) layer with a hydrogen-containing plasma, as recited in claim 1. Thus,

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independent claim 1, and all claims depending therefrom, are patentable over *Lu* in view of *Sivaram* and further in view of *Kim*, *Sandhu*, or *Foster*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

B. Claims 15-25

Claims 15-25 stand rejected as being unpatentable over *Lu* in view of *Sivaram* and further in view of *Kim*, or *Sandhu*, or *Foster*. In response, the Applicants have amended claim 15 to more clearly recite aspects of the invention. Claim 16 has been cancelled and its limitations incorporated into claim 15. Claims 17 and 18 have been amended to correct dependency.

Claim 15, as amended, recites limitations not taught or suggested by any combination of the cited references. As discussed in section III.A., above, no permissible combination of the references teaches or suggests a method for forming a TiSiN layer including the step of removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, and treating the titanium nitride (TiN) layer with a hydrogen-containing plasma, as recited in claim 15.

Furthermore, none of the cited references recite the additional step of removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom after the hydrogen plasma treatment of the TiN film, as recited in claim 15. As such, neither *Kim*, *Sandhu*, nor *Foster* may be combined with the teachings of *Lu* and *Sivaram* in a manner that yields all of the limitations of claim 15.

Thus, independent claim 15, and all claims depending therefrom, are patentable over *Lu* in view of *Sivaram* and further in view of *Kim*, *Sandhu*, or *Foster*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

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C. Claims 35-39

Claims 35-39 stand rejected as being unpatentable over *Lu* in view of *Sivaram* and further in view of *Kim*, or *Sandhu*, or *Foster*. In response, the Applicants have amended claim 26 to incorporate the limitations of claim 35 and to more clearly recite aspects of the invention. Claim 35 has been cancelled. Claims 36-39 have been amended to correct dependency from claim 35 to claim 26.

Claim 26, as amended, recites limitations not taught or suggested by any combination of the cited references. As discussed in section III.A., above, no permissible combination of the references teaches or suggests a method for forming a TiSiN layer including the step of removing reaction by-products from the process chamber generated during a titanium nitride film formation step by providing a purge gas to the process chamber and evacuating both the purge gas and the reaction by-products therefrom, and treating the titanium nitride (TiN) layer with a hydrogen-containing plasma, as recited in claim 26.

Thus, independent claim 26, and all claims depending therefrom, are patentable over *Lu* in view of *Sivaram* and further in view of *Kim*, *Sandhu*, or *Foster*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

D. Claims 46-50

Claims 46-50 stand rejected as being unpatentable over *Lu* in view of *Sivaram* and further in view of *Kim*, or *Sandhu*, or *Foster*. In response, the Applicants have amended claim 40 to incorporate the limitations of claim 46 and to more clearly recite aspects of the invention. Claim 46 has been cancelled. Claims 47-50 have been amended to correct dependency from claim 46 to claim 40.

Claim 40, as amended, recites limitations not taught or suggested by any combination of the cited references. As discussed in section II.C., above, no permissible combination of *Lu* and *Sivaram* teaches or suggests a method for forming a TiSiN layer including the step of treating the titanium nitride (TiN) layer

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with a hydrogen-containing plasma, as recited in claim 40. As further discussed in section III.A., above, there no motivation to apply the plasma treatments of *Kim*, *Sandhu*, or *Foster* to the TiSiN formation method of *Lu*. Moreover, as also discussed in section III.A, above, *Lu* teaches away from interposing intermediate steps between the TiN formation step and the step of annealing the TiN layer in a Si atmosphere.

Therefore, neither *Kim*, *Sandhu*, nor *Foster* may be combined with the teachings of *Lu* and *Sivaram* in a manner that teaches or suggests a method for forming a TiSiN layer by forming a TiN layer on a substrate in a first process chamber, treating the TiN layer with a hydrogen-containing plasma, moving the substrate into a second process chamber, and exposing the titanium nitride (TiN) layer to a silicon-containing gas to convert the titanium nitride (TiN) layer to a titanium silicide nitride (TiSiN) layer, as recited in claim 40. Thus, independent claim 40, and all claims depending therefrom, are patentable over *Lu* in view of *Sivaram* and further in view of *Kim*, *Sandhu*, or *Foster*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

E. Claims 51-61

Claims 51-61 stand rejected as being unpatentable over *Lu* in view of *Sivaram* and further in view of *Kim*, or *Sandhu*, or *Foster*. In response, the Applicants have amended claim 51 to more clearly recite aspects of the invention. Claim 52 has been cancelled. Claim 53-54 have been amended to correct dependency.

Claim 51, as amended, recites limitations not taught or suggested by any combination of the cited references. As discussed in section III.D., above, no permissible combination of the references teaches or suggests a method for forming a TiSiN layer by forming a TiN layer on a substrate in a first process chamber, treating the TiN layer with a hydrogen-containing plasma, moving the substrate into a second process chamber, and exposing the titanium nitride (TiN)

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layer to a silicon-containing gas to convert the titanium nitride (TiN) layer to a titanium silicide nitride (TiSiN) layer, as recited in claim 51.

Thus, independent claim 51, and all claims depending therefrom, are patentable over *Lu* in view of *Sivaram* and further in view of *Kim*, *Sandhu*, or *Foster*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

IV. 35 U. S. C. §102 Claims 1-6, 26-28, and 30-32

A. Claims 1-6

Claims 1-6 stand rejected as being anticipated by International Patent Application Publication No. WO 00/16377, published March 23, 2000 by Yi et al. (hereinafter *Yi*). In response, the Applicants have amended claim 1 to more clearly recite aspects of the invention.

Claim 1, as amended, recites limitations not taught or suggested by *Yi*. *Yi* describes a method for forming a Ti-Si-N film by repeatedly sequentially exposing a substrate to reactive gases including a gaseous metal compound, a gaseous silicon compound, and an ammonia gas. (*Yi* p. 2, l. 15 to p. 3, l. 1). However, *Yi* does not teach or suggest treating the titanium nitride (TiN) layer with a hydrogen-containing plasma prior to exposing the titanium nitride (TiN) layer to a silicon-containing gas to convert the titanium nitride (TiN) layer to a titanium silicide nitride (TiSiN) layer, as recited in claim 1.

Thus, independent claim 1, and all claims depending therefrom, are patentable over *Yi*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

B. Claims 26-28, and 30-32

Claims 26-28, and 30-32 stand rejected as being anticipated by *Yi*. In response, the Applicants have amended claim 26 to more clearly recite aspects of the invention.

Claim 26, as amended, recites limitations not taught or suggested by *Yi*. *Yi*, as discussed in section IV.A., above, does not teach or suggest treating the

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titanium nitride (TiN) layer with a hydrogen-containing plasma prior to exposing the titanium nitride (TiN) layer to a silicon-containing gas to convert the titanium nitride (TiN) layer to a titanium silicide nitride (TiSiN) layer, as recited in claim 26.

Thus, independent claim 26, and all claims depending therefrom, are patentable over *Yi*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

V. 35 U. S. C. §102 Claims 1-6, 26-28, and 30-32

A. Claims 1-6

Claims 1-6 stand rejected as being anticipated by "Chemical Vapor Deposition of Ti-Si-N Films With Alternate Source Supply", published April, 1999 by Min et al. (hereinafter *Min*). In response, the Applicants have amended claim 1 to more clearly recite aspects of the invention.

Claim 1, as amended, recites limitations not taught or suggested by *Min*. *Min* describes a method for forming a TiSiN using an alternating supply of an organometallic precursor (TDMAT), silane, and ammonia. (*Min*, Abstract, p. 207.) However, *Min* does not teach or suggest treating the titanium nitride (TiN) layer with a hydrogen-containing plasma prior to exposing the titanium nitride (TiN) layer to a silicon-containing gas to convert the titanium nitride (TiN) layer to a titanium silicide nitride (TiSiN) layer, as recited in claim 1.

Thus, independent claim 1, and all claims depending therefrom, are patentable over *Min*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

B. Claims 26-28, and 30-32

Claims 26-28, and 30-32 stand rejected as being anticipated by *Min*. In response, the Applicants have amended claim 26 to more clearly recite aspects of the invention.

Claim 26, as amended, recites limitations not taught or suggested by *Min*. *Min*, as discussed in section V.A., above, does not teach or suggest treating the titanium nitride (TiN) layer with a hydrogen-containing plasma prior to exposing

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the titanium nitride (TiN) layer to a silicon-containing gas to convert the titanium nitride (TiN) layer to a titanium silicide nitride (TiSiN) layer, as recited in claim 26.

Thus, independent claim 26, and all claims depending therefrom, are patentable over *Min*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

VI. 35 U. S. C. §102 Claims 1-4, 6-7, 10-14, 26-28, 31-32, and 35-38

A. Claims 1-4, 6-7, and 10-14

Claims 1-4, 6-7, and 10-14 stand rejected as being anticipated by United States Patent Serial No. 5,989,999, issued November 23, 1999 to Levine et al. (hereinafter *Levine*). In response, the Applicants have amended claim 1 to more clearly recite aspects of the invention.

Claim 1, as amended, recites limitations not taught or suggested by *Levine*. In relevant part, *Levine* teaches a method of depositing a TiN film using a metallo-organic titanium compound. (*Levine*, col. 15 ll. 56-59.) However, *Levine* does not teach or suggest forming a titanium nitride (TiN) layer from a reaction of titanium tetrachloride (TiCl₄) and ammonia (NH₃), as recited in claim 1.

Thus, independent claim 1, and all claims depending therefrom, are patentable over *Levine*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

B. Claims 26-28, 31-32, and 35-38

Claims 26-28, 31-32, and 35-38 stand rejected as being anticipated by *Levine*. In response, the Applicants have amended claim 26 to more clearly recite aspects of the invention.

Claim 26, as amended, recites limitations not taught or suggested by *Levine*. As discussed in section VI.A, above, *Levine* does not teach or suggest forming a titanium nitride (TiN) layer from a reaction of titanium tetrachloride (TiCl₄) and ammonia (NH₃), as recited in claim 26.

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Thus, independent claim 26, and all claims depending therefrom, are patentable over *Levine*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.


CONCLUSION

Thus, applicants submit that all of the pending claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action for any of the claims now pending in this application, it is requested that the Examiner telephone Mr. Keith Taboada at (732) 530-9404, so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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